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ABSTRACT

Despite the scope and accessibility of the current knowledge base in teaching, teachers rarely refer to research findings as a primary information source to guide their practice. If teacher education is to survive the onslaught of politically inspired alternative certification routes now operating in 20 states, it is critical that teacher education characteristics be not only research-based, but also the subject of research. Some emerging postbaccalaureate alternative teacher preparation programs offer timely possibilities for strengthening preservice teachers' awareness of research as a resource for problem-solving in the classroom. This paper describes findings from a preliminary study examining teacher candidates in several alternative postbaccalaureate programs in the Mid-Atlantic states. The study explores whether alternative program graduates are more or less apt to value research and its implications for improving practice. The study also examines how well these programs support teacher candidates' needs and learning dispositions. The first phase piloted a questionnaire to be administered to teacher candidates in different programs and at different stages of program completion. The questionnaire was completed by student teachers in traditional programs and by interns in alternative programs, either immediately before the teaching experience or during the first 2 weeks. Results were somewhat mixed but, generally, students in alternative programs stressing research tend to value research's contribution to practice more highly than students in traditional or alternative programs lacking a research emphasis. Other results, study limitations, and implications are discussed. Included are 2 appendices and 10 references. (MLH)

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TEACHERS AS RESEARCHERS

AND

RESEARCHERS AS TEACHERS:

LESSONS LEARNED FROM THREE POST BACCALAUREATE TEACHER CERTIFICATION PROGRAMS

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TEACHERS AS RESEARCHERS AND RESEARCHERS AS TEACHERS: LESSONS LEARNED FROM THREE POST BACCALAUREATE TEACHER PREPARATION PROGRAMS

In the recent literature on teaching and teacher education, there is general agreement that a knowledge base which is far more valid, reliable, and rich than ever before is now accessible to teachers and teacher educators (Reynolds, 1989). There is also growing consensus that this knowledge base is a confluence which is fed by two mighty rivers: the wisdom of practice (Shulman, 1987) and the lessons learned from rigorous qualitative and quantitative research (Berliner, 1987). With the emerging knowledge on teaching has come a corresponding emphasis on the importance of the reflective and problem-solving abilities of classroom teachers (Valli 1988).

Faced with the simultaneity and multidimensionality of the classroom (Doyle 1980), teachers confront thousands of decisions each day. Given the scope and accessibility of the current knowledge base on teaching, it would seem logical that the current generation of teachers-in-training and teachers-in-service would consult it to solve the problems which they encounter in their classrooms. Why, then is it still so rare to find teachers referring to the knowledge base -- and especially to the findings of research -- as a primary source of information to guide their practice? Teachers continue to rely much more heavily upon maxims and homilies which they absorb in their preservice field experiences and on the job than on the research-based theories and techniques which they learn in their pre-service teacher education programs (Berliner, 1987). One possible explanation is that teacher candidates are too young,

inexperienced, and undeveloped in the life of the mind to truly assimilate research and theory and to convert it to practice. The original Holmes Group recommendation (1986) to eliminate undergraduate teacher education addresses that hypothesis.

In the current climate of reform and innovation in teacher education, many institutions of higher education are experimenting with new ways of preparing teachers. Fifth year and five-year programs now co-exist with traditional undergraduate programs at many institutions. At last year's meeting of AERA, Feiman-Nemser (April, 1988) described the varied characteristics of program formats which are now available to students in teacher education. It is quite natural that in this era of proliferation of "alternative programs" there needs to be parallel proliferation of research which compares the effectiveness of various program formats and characteristics. If teacher education is to survive the onslaught of politically inspired alternate certification routes now operating in twenty three states (Darling-Hammond, 1988), it is critical that the characteristics of teacher education not only be research-based but also the subject of research. The National Center for Research on Teacher Education is trying to inform current debate and curriculum reform by examining what teachers are taught and what they learn in different kinds of teacher education programs (1988, p. 27). Much can be learned from studies in which we examine the goals and assumptions, the learning experiences, and the effects of what the Center calls "deliberate educational intervention" (p. 27).

The post-baccalaureate alternative teacher preparation

programs which are emerging nationally provide good opportunities for one such deliberate intervention: the development and implementaion of teacher education programs which improve teachers' knowledge of, attitudes toward, and use of educational research. The nature of the students, the basic premises of the programs, and the structure of program components in post-baccalaureate alternative teacher education programs can vary substantively from those of traditional undergraduate teacher education. These new alternative programs offer timely possibilities for strengthening pre-service teachers' awareness of research as a resource to apply to problem solving in the classroom; attempts can be made to counteract the view of "trial and error" experience as the "best teacher."

DESCRIPTION OF THE STUDY

In this paper, we describe the findings resulting from the preliminary phase of a broad-based examination of teacher candidates in the new generation of post-baccalaureate alternative teacher preparation programs. This study represents the initial efforts of a consortium of teacher education researchers representing several universities and a state department of education in the Middle Atlantic Region.

In the region in which this study is conducted, a number of post-baccalaureate alternative teacher education programs are emerging in response to the new wave of late deciders and career changers.

As a result of the apparent success of these programs, dialogue among teacher educators has centered around the relative effectiveness of these alternative programs in relationship to

the traditional programs.

For example, one question which is being asked is: Are the graduates of these alternative programs more or less apt to value research and its implications for improving practice? Many other questions about these students, including their demographic profiles, their success in various settings, and their career aspirations and progress are raised.

Another question which arises is how well do characteristics of alternative post baccalaureate programs support the needs and learning dispositions of the teacher candidates who are populating these programs.

Therefore, the general purpose of this study is to examine these and other related questions and the results reported in this paper represent a first step of a thorough ongoing appraisal of alternative post-baccalaureate teacher preparation programs and students.

During the preliminary phase, the emphasis was placed on identifying parameters and principal components of alternative programs, developing profiles of teacher candidates in these programs and piloting several alternative means of assessing program effects. We are reporting in this paper the results of piloting a questionnaire, the results of piloting The Problem Solving Inventory (Heppner 1986) and developing a limited profile of teacher candidates in an alternative program in one of the institutions involved in the study.

Specifically, one of the primary purposes of this study is to investigate the hypothesis that teacher candidates in the final stages of alternative post baccaluareate programs may be

more inclined to value research, seek answers to their problems from research sources, develop greater confidence and competence as professional decision makers, consult and conduct research to determine new directions for themselves and their pupils.

The questionnaire was piloted to investigate the following types of questions:

1. To what extent are post-baccalaureate teacher education students more research-oriented than students enrolled in traditional undergraduate teacher education programs?

2. To what extent is a strong research emphasis in a post-baccalaureate teacher preparation program effective at producing positive attitudes toward research?

Although this study relies upon an attitude scale to assess students' attitudes toward research and direct experience as sources of teacher knowledge, a subsequent stage of this study is envisioned during which case studies, systematic observation instruments, case reports, and journals are used to assess the persistence over time of positive attitudes and behaviors related to research.

PROCEDURE

The preliminary phase of the study involved three tasks which were being completed concurrently. They are:

1. Develop a limited profile of teacher candidates in one alternative program.

2. Pilot The Problem Solving Inventory (Heppner 1986) in one alternative program.

3. Construct and pilot a questionnaire to assess attitudes toward research and direct experience held by the teacher candidates in the alternative and traditional programs in three institutions of higher education.

Profile of Teacher Candidates

Each teacher candidate who completed the questionnaire

also completed an accompanying "data sheet". This "data sheet" was used as a basis for developing Table 1, Demographic Profile of the Respondents. The respondents to the questionnaire were limited to student teachers and interns. Another similar "data sheet" was given to all levels of teacher candidates enrolled in the alternative post baccalaureate program at Institution B, Fall Semester 1988. See Appendix A.

Problem Solving Inventory

All of the Teacher Candidates in the Post-Baccalaureate Teacher Certification Program who were in their first week of the internship completed the inventory Spring Semester 1988 at Institution B. The inventory includes three scales which assess: 1) Problem Solving Confidence, 2) Approach/Avoidance Style, 3) Personal Control. See Appendix B.

Questionnaire

The intention in the first phase of the study was to pilot a questionnaire which would be administered on an ongoing basis to teacher candidates in different programs and at different stages of program completion.

A set of questions were compiled which were intended to assess the degree of positive attitude toward research or direct experiences. Several of the questions required reverse scoring and a variety of other "filler" questions were included. In all, the "Teacher Belief Inventory" consisted of thirty five questions which were rated on a five point Likert scale from strongly agree to strongly disagree.

The questionnaire was completed by student teachers in traditional programs and interns in alternative programs either

immediately before they began the experience or in the first two weeks of the experience.

THE RESPONDENTS

The questionnaire was completed by teacher candidates in "traditional" undergraduate programs and by cohort groups in alternative programs in three different institutions (N=89).

The demographic profile of the respondents to the questionnaire according to each teacher education program is presented in Table 1.

TABLE 1

DEMOGRAPHIC PROFILE OF RESPONDENTS TO QUESTIONNAIRE BY TRADITIONAL AND POST-BACCALAUREATE ALTERNATIVE TEACHER EDUCATION PROGRAMS BY INSTITUTION

PROGRAM TYPE BY INSTITUTION	AGE		GPA		N
	mean	range	mean	range	
INSTITUTION (A) POST BACCALAUREATE	31.0	21-44	3.5	2.9-4.0	22
INSTITUTION (A) TRADITIONAL	26.1	21-48	3.4	2.7-4.0	23
INSTITUTION (B) POST BACCALAUREATE	32.7	24-39	3.3	2.9-3.9	12
INSTITUTION (B) TRADITIONAL	26.9	21-41	3.3	3.0-3.8	8
INSTITUTION (C) POST BACCALAUREATE	26.1	22-40	3.3	2.8-3.9	15
INSTITUTION (C) TRADITIONAL	28.1	19-44	2.9	2.8-3.5	9

The Institutions

Institution A is a large land grant university campus (38,000+ students) which prepares approximately three hundred teachers per

year. Institution B is a moderate size state university campus (10,000+ students) which prepares approximately one hundred teachers per year. Institution C is a moderate size private institution (16,000 students) and prepares approximately one hundred twenty teachers per year. Each of the institutions has diversified programs in teacher education which are approved by the National Association of State Directors of Teacher Education and Certification (NASDTEC).

"Control" Groups

The undergraduate programs in each institution serve as the "control" group(s) for the study. Each program includes an early field experience with student teaching as a culminating experience. The "traditional" programs at Institution A and C are bachelor degree programs in education and at Institution B, a certification program with students majoring in an academic discipline. It should be noted that each program includes a number of the same kind of students (second career, delayed career, retired, fifth-year, etc.) that populate the post-baccalaureate alternative programs.

"Experimental" Groups

The post-baccalaureate alternative programs in each institution serve as the "experimental" group(s) for the study. The design of each program varies in a number of ways. A profile of salient features of each program is described below and summarized in Table 2.

The alternative teacher certification program at Institution A is a master's degree program which admits a cohort group of approximately twenty students once a year for full-time (summer

and an academic year). The program emphasizes the application of research to enhance teaching and has a relatively "traditional" field component consisting of a few early observations the first semester and a sixteen week "internship" the final semester.

The alternative teacher certification program at Institution B admits a cohort group of approximately twenty students each semester for a minimum of a three semester course of study (may be extended). The teacher candidates are admitted to a graduate program and the course of study can be applied to a

TABLE 2

PROFILE OF SALIENT FEATURES OF ALTERNATIVE PROGRAMS INCLUDED IN THE STUDY

SALIENT FEATURE OF ALTERNATIVE PROGRAM	Institution A	Institution B	Institution C
Number Teacher Candidates per Cycle	20	20	20
Length of Cycle	Su F S Su	3 - 5 Sem	Su F S Su
Program Location	Campus	Campus	School
Cohort Groups	Yes	Yes	Yes
Full vs Part Time	Full	Part-Time	Full
Program Thrust/ Emphasis	Research Reflection Repertoire	ISD/Field Observation Decision Mkg	Field Substitute Teaching
Simulated Experiences	Yes	Yes	Yes
Field Experience	Early Obs	Continuous Part Time Obs/Partic	Continuous Substitute Teaching
Internship	16 weeks	16 weeks	Summer Sch

master's degree. The program emphasizes the instructional systems design approach, teacher research and reflection on practice and classroom observation and participation in classrooms each semester with a 16 week "internship" the final semester.

The alternative teacher certification program at Institution C is a cohort group of approximately twenty students admitted once a year for a year-long course of study leading to certification. The program emphasizes "direct experience" with all teacher candidates employed as substitute teachers in a local school system for the duration of the program.

INSTRUMENTATION

Attitude Assessment

Each of the groups completed the Teacher Belief Inventory either immediately before they began their student teaching or internship or during the first few weeks of the experience. Using a five-point Likert scale, teacher candidates were asked to respond to a set of items on the questionnaire which were intended to assess their attitudes toward research and attitudes toward direct experience as important sources of knowledge for informing teaching practice. The questions listed below illustrate the type of items included in the instrument.

Question (5) Empirical research has advanced the teacher's ability to demonstrate how teaching can be improved and learning enhanced.

Question (6) Most important aspects of teaching are learned through direct experience.

Question (12) Educational research and its synthesis point the way toward improvements and increased teacher effectiveness.

Question (13) The best guide for effective teaching practice is experience.

Question (18) In general, research on teaching is a better guide for teachers than common sense ideas have accumulated over the years.

Question (22) The solution to most teaching problems can be found through experience.

Question (26) In the long run, the improvement of teaching will come in large part from research on teaching."

Question (29) To be a good teacher, one must continually test and refine assumptions and beliefs that guide his/her approach to teaching.

Question (30) Today, too many teachers continue to emphasize the importance of individual contexts on teaching, rather than the generalizability of research findings on teaching.

Question (32) Most of the ideas I currently hold about teaching come more from experience and watching other teachers than from research about teaching and learning."

Questions 5, 12, 18, 26, 29, 30, 32 were selected as a "scale" of indicators of attitudes toward research. A subset of Questions 5, 30, 32 were also identified as another "scale" if idicators of attitudes toward research. Questions 6, 13, 22 were selected as a "scale" of indicators of attitudes toward direct experience. An estimate of internal consistency was computed for each of the sets and the one subset of indicators. Cronbach's Alpha for the Research Indicators Scale was .64, for the Research Subset Scale .38, and for Direct Experience Indicators Scale

refinement of the questions will be required before the instrument can be judged reliable.

RESULTS

Due to the distinctive nature of each of the post-baccalaureate alternative programs in the study, the data were not aggregated by post-baccalaureate and undergraduate categories.

Instead, each post-baccalaureate program was compared with each of the other two post-baccalaureate programs and with each of the undergraduate programs.

The data were inspected for large difference in means between and among groups. Subsequently, the T-Test for independent groups was run. The results of the "significant" T-Tests appear in Table 3. (Key - "A" = Alternative, "T" = Traditional)

TABLE 3

COMPARISON OF TEACHER CANDIDATE RESPONSES TO SELECTED INDICATORS OF RESEARCH AND DIRECT EXPERIENCE ATTITUDES BY TYPE OF TEACHER EDUCATION PROGRAM

INDICATOR	MEANS AND STANDARD DEVIATIONS BY TEACHER EDUCATION PROGRAM						t	STATISTIC RESULTS	
DIRECT EXPERIENCE QUESTIONS	prog	mean	sd		prog	mean	sd	t	SE	p
6	INST C "A"	4.3	1.1	>	INST B "A"	3.7	1.3	1.3	.5	.10
	INST B "T"	4.6	1.3	>	INST B "A"	3.7	1.3	1.9	.5	.10
13	INST C "A"	4.4	.8	>	INST A "A"	4.0	.8	1.3	.3	.10
	INST C "A"	4.4	.8	>	INST B "A"	3.8	.8	1.3	.4	.10
	INST C "A"	4.4	.8	>	INST A "T"	4.0	1.0	1.3	.3	.10
22	INST C "A"	3.4	.6	>	INST A "A"	2.8	.9	2.4	.3	.01
	INST A "T"	3.5	.9	>	INST A "A"	2.8	.9	2.5	.3	.01
RESEARCH QUESTIONS										
5	INST A "A"	4.1	.7	>	INST A "T"	3.8	.9	1.2	.2	.10
	INST B "A"	3.5	.6	>	INST B "T"	3.1	.9	1.2	.3	.10
	INST C "A"	4.0	.8	>	INST B "A"	3.5	.6	1.8	.3	.05
	INST C "A"	4.0	.8	>	INST B "T"	3.1	.8	2.6	.3	.01
30	INST B "T"	3.1	.8	>	INST A "A"	2.8	.6	1.8	.2	.05
	INST B "A"	3.3	.6	>	INST B "T"	2.5	1.3	1.7	.4	.05
	INST B "A"	3.3	.6	>	INST C "T"	3.3	.5	1.5	.2	.10
32	INST A "A"	3.0	1.0	>	INST A "T"	2.5	1.2	1.5	.3	.10
	INST A "A"	3.0	1.0	>	INST C "T"	2.5	1.0	1.5	.3	.10
	INST A "A"	3.0	1.0	>	INST B "T"	2.5	1.2	1.5	.3	.10

A decision was made to include T-Statistics in Table 3 which were significant at the .01, .05, and .10 levels for information purposes during this preliminary stage of the study.

As revealed in Table 3, teacher candidates in the alternative program at Institution C which emphasizes direct experiences in a continuous substitute teaching experience were some-what more likely than their peers in alternative programs at campus based programs at the other two institutions to agree with statements which suggest that teachers benefit more from direct experience than from consulting research results. Surprisingly, they were more likely than their peers at Institution B and the traditional program students at Institution B to agree with the statement that empirical research has advanced teaching (Question 5). This anomaly must be studied further. There is an apparent trend for teacher candidates in the field-based alternative program at Institution C to have more positive attitudes toward direct experience than teacher candidates in other alternative and one traditional programs. It must be noted that only one of these difference is significant at the .01 level.

The students in the traditional program at Institution B also agreed more strongly that direct experience is the "best teacher" than did the students in alternative programs at the same institution (Question 30).

Finally, on two research items (Question 5 and 32), students in the alternative program at Institution A, the program which has the heaviest emphasis on research, scored higher than the undergraduates at that institution. It is interesting to note, however, that teacher candidates in the alternative program

at Institution C rated Question 5 significantly higher than both the traditional and alternative students at Institution B. This once again points to the need for further analysis and refinement of the Research Questions or the need to give closer scrutiny to variability of program and student characteristics which might contribute to these somewhat erratic results.

Indicator Scales

As described above one goal of the preliminary phase of the study was to attempt to identify "indicator scales" for assessing teacher candidate attitudes toward research and direct experience. Three scales were identified and analyzed as described above. It is important to note that the Research Subset Indicator Scale alpha values were well below acceptable levels.

The Indicator Scales were identified as follows:

1) Research Indicator Scale - Questions (5, 12, 18, 26, 29, 30, 32)
2) Research Indicator Subset Scale - Questions (5, 30, 32)
3) Direct Experience Indicator Scale - Questions (6, 13, 22)

The Indicator Scales were analyzed for large differences in means for aggregate scores on the questions included in the scales across and between groups. The T-Test for independent groups was computed. The T-Statistic results which were significant at the .01, .05, .10 levels are reported in Table 4.

A perusal of the data reported in Table 4 will reveal some of the same general trends as indicated by the results reported in Table 3 which were discussed above. As can be observed in Table 4, the teacher candidates in traditional programs at Institutions A and B rated the value of research lower than their

TABLE 4

COMPARISON OF TEACHER CANDIDATE RESPONSES TO SELECTED INDICATOR SCALES ON RESEARCH AND DIRECT EXPERIENCE ATTITUDES BY TYPE OF TEACHER EDUCATION PROGRAM

INDICATORS	MEANS AND STANDARD DEVIATIONS BY TEACHER EDUCATION PROGRAM					t STATISTIC RESULTS		
	mean	sd		mean	sd	t	SE	p
RESEARCH "SCALE"								
	INST A "A" 3.3	.5	>	INST A "T" 3.1	.5	1.3	.2	.10
	INST A "A" 3.3	.5	>	INST B "T" 2.5	.6	3.4	.2	.01
	INST A "A" 3.3	.5	>	INST B "A" 3.1	.4	1.3	.2	.10
	INST A "A" 3.3	.5	>	INST C "A" 3.1	.5	1.2	.2	.10
	INST A "T" 3.1	.6	>	INST B "T" 2.5	.6	2.1	.2	.01
	INST C "T" 3.4	.3	>	INST A "T" 3.1	.6	1.4	.2	.10
	INST A "T" 3.1	.4	>	INST B "T" 2.5	.6	2.2	.2	.10
	INST C "A" 3.1	.5	>	INST B "T" 2.5	.6	2.4	.2	.10
	INST C "T" 3.4	.3	>	INST B "T" 2.5	.6	3.4	.2	.01
	INST C "T" 3.4	.3	>	INST B "A" 3.1	.4	1.7	.2	.05
RESEARCH SUBSET "SCALE"								
	INST A "T" 4.0	.6	>	INST A "A" 3.7	.5	1.7	.2	.05
	INST C "A" 4.0	.6	>	INST A "A" 3.7	.5	1.7	.2	.05
	INST A "T" 4.0	.6	>	INST B "A" 3.5	1.2	1.6	.3	.10
	INST C "A" 4.0	.4	>	INST B "A" 3.5	1.2	1.4	.4	.10
	INST B "T" 4.0	.8	>	INST A "A" 3.7	.5	1.2	.3	.10
DIRECT EXPERIENCE "SCALE"								
	INST A "A" 3.3	.4	>	INST B "T" 3.0	.4	1.6	.2	.10
	INST C "T" 3.5	.4	>	INST A "A" 3.2	.4	1.5	.2	.10
	INST B "A" 3.3	.5	>	INST B "T" 3.0	.4	1.6	.2	.10
	INST C "A" 3.3	.4	>	INST B "T" 3.0	.4	2.0	.2	.05
	INST C "T" 3.5	.4	>	INST B "T" 3.0	.4	3.0	.2	.01

counterparts in alternative programs in institution A.

It is interesting to note somewhat of a reversal when the differences among groups are compared on the Research Indi-

cator Subset Scale. For example, students in the alternative program at Institution C rated the value of research higher than both the students in alternative programs at Institutions A and B.

While the Direct Experience Indicator Scale tends to confirm the direction of ratings reported for individual questions there is an interesting exception. The teacher candidates in the alternative programs of all three institutions rated direct experiences more valuable than the teacher candidates in the traditional program at Institution B. Once again the caveat must be offered that these observation include levels of significance at the .10 level.

Although the results are suggestive, they are far from conclusive. Given this caveat, the following trends might be inferred from the results of this preliminary study:

1. Students in post-baccalaureate alternative programs with a heavy emphasis on research tend to react more favorably to propositions which suggest that research is an important source of knowledge to inform practice than do students (traditional or alternative) where research is less prominent as a program theme.

2. Students in post-baccalaureate programs where learning through direct experience in the classroom is a prominent theme will be more likely than their peers in campus-based post-baccalaureate programs to credit direct experience as the sine qua non of teaching.

Other relationships among attitudes of students in undergraduate teacher education programs and post-baccalaureate students are still too tentative to report at this time. However, in at least one institution (B) in this study, the attudes of undergraduates toward the value of direct experience are closer to those of students in the field-based post-baccalaureate

program (Institution C) than to the post-baccalaureate students at their own institution.

To summarize the results of this preliminary study, it appears that in teacher education programs which have a strong, overt theme (eg. research or field), students' attitudes will tend to be reflective of that theme. This finding suggests that pre-service students in teacher education may be very receptive to a strong, overt program theme and therefore a particular program emphasis may be instrumental in shaping their overall views of the role of the teacher.

LIMITATIONS OF THE STUDY

The fact that the results reported in this paper are tentative is at least in part by design. The researchers are pursuing a long term, longitudinal investigation of attitudes toward research, levels of research consumption, and research productivity of cohorts of students in several post-baccalaureate teacher education programs. The students will be "followed" through their second year of teaching to assess the strength and longevity of the attitudes toward research and their resistance to the "school acculturation" process.

There are still many unanswered questions and findings from the data, such as the effects of prior experience and education and the maturity factor on the attitudes of students in the study. Also, the fact that students in the field-based program scored higher in one case than a campus-based cohort on attitudes toward research needs further scrutiny. In comparison with each of the other cohorts, the field-based students scored higher on direct experience and lower on research.

Finally. the questionnaire must be subjected to more rigorous field testing and analysis. The refinement of a questionnaire for attitudinal research is always a challenge!

RECOMMENDATIONS AND IMPLICATIONS

In an era of close scrutiny and calls for reform of teacher education, it is interesting to note that the results of this study raises questions which are not necessarily in concert with the general tenor of the proposed reforms. This study suggests that it may be as important to examine the conceptions of teaching and the role of the teacher which undergird programs as it is to investigate various configurations of time and level of study (eg. four year vs five years). If teachers are to conceive of their roles as decision makers and problem solvers in complex, sensitive milieus, the overt and covert messages of teacher preparation programs must support, not contradict, that conceptualization. It is not reasonable to expect that a teacher will respect, value, and consult the knowledge base on teaching if they are not required to do so and not rewarded for doing so in their pre-service training.

It is also unreasonable to expect teachers-in-training who are placed in classrooms as aides or as substitute teachers before they have had an opportunity to develop conceptual, cognitive organizers for that social system and their role in it, to become the reflective practitioners and action researchers needed in contemporary classrooms. The concept of the "hidden curriculum" may be as valid in teacher education programs as it is in public school classrooms. It is not always what you say or do which is learned but the values and assumptions upon which your

instructional program rests and the subtle cues in the instructional milieu which may be learned. Therefore, it is important to consider the "messages" about teaching and the role(s) of teachers which our pre-service programs may be transmitting. This study reveals many more questions to be studied to gain clarity on the impact of the themes, values, and assumptions undergirding teacher education programs on attitudes toward research and teachers-as-researchers of pre-service students. Among the set of questions which these researchers intend to examine are the following:

1. What is the influence of age, educational and occupational background of teacher candidates on their predispositions to consulting, using, and producing research?

2. What is the influence of teaching experience (i.e., a year or two in the field) on teachers' attitudes toward research and the existence/utility of the knowledge-base?

3. Which themes or organizing conceptual frameworks for teacher education programs have more staying power (i.e., longevity) for beginning teachers?

4. What, if any, are the differences in faculty attitudes toward research of undergraduate and post baccalaureate students?

These and other questions remain to be analyzed and replicated by the community of scholars in teacher education. The answers, no matter how tentative at this time, may begin to point the way to developing an epistemologically sound case for teacher education programs that is defensible within that community and to the public at large.

A P P E N D I X A

ALTERNATIVE PROGRAM TEACHER CANDIDATE PROFILES

PROBLEM SOLVING INVENTORY

RELATIONSHIP OF PROBLEM SOLVING CONFIDENCE AND STYLE WITH AGE

N	AGE	CFD mean	APP/AV mean	PER CTRL mean
3	UNDER 25	21.6	40.2	14.9
10	25 - 30	24.8	38.7	15.4
12	30 - 35	22.1	45.4	15.6
7	35 - 40	22.4	33.7*	13.7*
5	40 - 45	17.9*	40.1	16.0
4	45 - 50	23.5	32.5*	13.5*
0	50 - 55	N O N E		
1	55 - 60	22.0	47.0	20.0

*Significant = Greatest Confidence, Approach Style, Personal Control

CFD = CONFIDENCE IN PROBLEM SOLVING

APP/AV = APPROACH/AVOIDANCE

PER CTRL = PERSONAL CONTROL

FUTURE QUESTIONS

> WHAT IS THE RELATIONSHIP BETWEEN PROBLEM SOLVING CONFIDENCE AND ATTITUDES TOWARD DIRECT EXPERIENCE AND RESEARCH?

> WHAT IS THE RELATIONSHIP AMONG PROBLEM SOLVING CONFIDENCE, GPA, PROBLEM SOLVING PERFORMANCE, AGE, AND ATTITUDES TOWARD DIRECT EXPERIENCE AND RESEARCH?

A P P E N D I X B

THE PROBLEM SOLVING INVENTORY

PRIOR EXPERIENCES/CAREERS

SUBSTITUTE TEACHER 15%
PRIVATE SCHOOL TEACHER 5%
SEAGRAMS QUALITY CONTROL
DEPARTMENT OF DEFENSE
SALES
CLEAN WATER CAMPAIGN
COMPUTER APPLICATIONS
MANAGER - SOCIAL SECURITY
RACE HORSE OWNER/TRAINER
ASST MGR PIZZA HUT
NATIONAL BUREAU OF STANDARDS
CLERK TYPIST
TEMPORARY SERVICES
INTERNAL REVENUE SERVICE
FIRE DEPARTMENT FUND RAISER
GENERAL FOODS
VA HOSPITAL CHEMIST
DEPT MGR/ADM ASST BANK
MORTGAGE COMPANY REPRESENTATIVE
HOME TEACHER
QUALITY ASSURANCE
TAXI CAB OWNER/DRIVER
BANK TRAINER
GROCERY CLERK
HOUSEWIFE
CUSTOMER SERVICE
SOCIAL SERVICES
MEDICAL LABORATORY
INSURANCE CLAIMS ADJUSTER
SKI SALES
VOICE OF AMERICA
JHU APPLIED PHYSICS LAB
MD POLICE CRIME LAB
EXTENSION AGENT
TRANSLATOR/EDITOR
TEACHING ASSISTANT UMBC
SPECIAL SERVICES UMBC
WAITRESS

BACCALUAREATE INSTITUTIONS

UNIVERSITY OF MARYLAND (UMBC) 11%
UNIVERSITY OF MARYLAND (UMCP) 12%
UNIVERSITY OF MARYLAND (UMAB)
GOUCHER COLLEGE
LOYOLA COLLEGE
NOTRE DAME COLLEGE
TOWSON STATE UNIVERSITY
JOHN HOPKINS UNIVERSITY
BOWIE STATE COLLEGE
SALISBURY STATE UNIVERSITY
FROSTBURG STATE UNIVERSITY
UNIVERSITY OF BALTIMORE
VANDERBILT UNIVERSITY
AMERICAN UNIVERSITY
BOSTON UNIVERSITY
PRINCETON UNIVERSITY
ANTIOCH COLLEGE
LOMA LINDA UNIVERSITY
SUNY - ALBANY,ROCHESTER
WESTERN MICHIGAN UNIVERSITY
UNIVERSITY DISTRICT COLUMBIA
LOUISIANA STATE UNIVERSITY
WAKE FOREST UNIVERSITY
UNIVERSITY OF MIAMI
CATHOLIC UNIVERSITY OF RIO
PENNSYLVANIA STATE UNIVERSITY
WEST VIRGINA WESLEYAN COLLEGE
FLORIDA STATE UNIVERSITY
YALE UNIVERSITY
OLD DOMINION UNIVERSITY
UNIVERSITY OF FLORIDA
THOMAS EDISON COLLEGE
COLLEGE OF NEW ROCHELLE
UNIVERSTY OF SOUTHERN CALIFORNIA
UNIVERSITY OF NEW MEXICO
GEORGE MASON UNIVERSITY
DRURY COLLEGE

INSTITUTION (B) ALTERNATIVE TEACHER CERTIFICATION PROGRAM
CANDIDATE PROFILE

MAJOR	CERTIFICATION
AGRICULTURAL ECONOMICS	SOCIAL STUDIES/ MATHEMATICS
ART	SCIENCE
INDUSTRIAL ENGINEERING	MATHEMATICS
MUSIC	SOCIAL STUDIES
MEDICAL TECHNOLOGY	SCIENCE
SOCIOLOGY	ENGLISH
BUSINESS	SCIENCE
PHD CANDIDATE POLICY SCIENCES	SOCIAL STUDIES
MA CANDIDATE BIOCHEMISTRY	SCIENCE
MA CANDIDATE MODERN LANGUAGES	SPANISH
RELIGION	ELEMENTARY
MEDICAL TECHNOLOGY	ELEMENTARY
NURSING	ELEMENTARY
SOCIAL WORK	ELEMENTARY
NUTRITION	ELEMENTARY

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